

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A method of screening *in vitro* for modulators of RDGC GPCR phosphatase activity, the method comprising the steps of:
 - (i) providing a sample comprising a G-protein coupled receptor and a recombinant Drosophila RDGC phosphatase;
 - (ii) contacting the sample with a test compound suspected of having the ability to modulate RDGC GPCR phosphatase activity; and
 - (iii) detecting a change in the level of Drosophila RDGC GPCR phosphatase activity in the sample in comparison to the level of activity in the absence of the test compound, thereby detecting RDGC GPCR phosphatase activity.
2. (cancelled)
3. (previously presented) The method of claim 1, wherein the G-protein coupled receptor is selected from the group consisting of muscarinic receptors, neuronal nicotinic acetylcholine receptors, gamma aminobutyric acid receptors, glutamate receptors, β -1 adrenergic receptors, β -2 adrenergic receptors, -adrenergic receptors, substance K receptors, rhodopsin receptors, angiotensin receptors, dopamine receptors, nerve growth factor receptors, serotonin receptors, and taste cell receptors.
4. (previously presented) The method of claim 1, wherein the G-protein coupled receptor is rhodopsin.
5. (previously presented) The method of claim 4, wherein the rhodopsin is recombinant.

6. (previously presented) The method of claim 1, wherein the step of detecting comprises a G-protein coupled receptor phosphorylation assay.

7. (previously presented) The method of claim 1, wherein the step of detecting comprises a G-protein coupled receptor mobility assay.

8. (previously presented) The method of claim 1, wherein the step of detecting comprises a G-protein coupled receptor signal transduction assay.

9. (previously presented) The method of claim 1, wherein the sample comprises a cell.

10. (previously presented) The method of claim 9, wherein the cell is selected from the group consisting of a eukaryotic cell, an insect cell, a mammalian cell.

11. (previously presented) The method of claim 10, wherein the cell is selected from the group consisting of a *Drosophila* cell or a human cell.

12. (previously presented) The method of claim 1, wherein the sample comprises a membrane comprising a G-protein coupled receptor.

13. (previously presented) The method of claim 1, wherein the sample comprises an aqueous sample or a solid-phase sample.

14. (currently amended) The method of claim 1, further comprising the steps of:

(iv) providing a second sample comprising the G-protein coupled receptor and a mutant *Drosophila* RDGC phosphatase;

(v) contacting the second sample with the test compound suspected of having the ability to modulate RDGC GPCR phosphatase activity;

(vi) detecting *Drosophila* RDGC GPCR phosphatase activity in the second sample; and

(vii) comparing the level of Drosophila RDGC GPCR phosphatase activity in the first sample and the second sample.

15. (currently amended) A method of screening a cell for modulators of RDGC GPCR phosphatase activity, the method comprising the steps of:

(i) providing a cell sample comprising rhodopsin and Drosophila RDGC phosphatase;

(ii) contacting the sample with a test compound suspected of having the ability to modulate RDGC GPCR phosphatase activity; and

(iii) detecting a change in the level of Drosophila RDGC GPCR phosphatase activity in the sample in comparison to the level of activity in the absence of the test compound thereby detecting RDGC GPCR phosphatase activity.

16. (currently amended) The method of claim 15, wherein the Drosophila RDGC phosphatase is recombinant.

17. (previously presented) The method of claim 15, wherein the rhodopsin is recombinant.

18. (cancelled)

19. (currently amended) The method of claim ~~18~~ 15, wherein the cell is selected from the group consisting of a eukaryotic cell, a mammalian cell, an insect cell.

20. (previously presented) The method of claim 19, wherein the cell is selected from the group consisting of a Drosophila cell or a human cell.

21. (cancelled)

22. (previously presented) The method of claim 15, wherein the sample comprises an aqueous sample or a solid-phase sample.

23. (currently amended) The method of claim 15, further comprising the steps of:

- (iv) providing a second sample comprising the rhodopsin and a mutant Drosophila RDGC phosphatase;
 - (v) contacting the second sample with the test compound suspected of having the ability to modulate RDGC phosphatase activity;
 - (vi) detecting Drosophila RDGC phosphatase activity in the second sample;
- and
- (vii) comparing the level of Drosophila RDGC phosphatase activity in the first sample and the second sample.

24. (currently amended) A method of screening *in vivo* for modulators of RDGC GPCR phosphatase activity, the method comprising the steps of:

- (i) providing an animal comprising a cell comprising a G-protein coupled receptor and an a Drosophila RDGC phosphatase;
- (ii) contacting the animal with a test compound suspected of having the ability to modulate RDGC GPCR phosphatase activity; and
- (iii) detecting a change in the level of Drosophila RDGC GPCR phosphatase activity in the animal in comparison to the level in the absence of the test compound thereby detecting RDGC GPCR phosphatase activity.

25. (currently amended) The method of claim 24, wherein the Drosophila RDGC phosphatase is recombinant.

26. (previously presented) The method of claim 24, wherein the G-protein coupled receptor is selected from the group consisting of muscarinic receptors, neuronal nicotinic acetylcholine receptors, gamma aminobutyric acid receptors, glutamate receptors, β -1 adrenergic receptors, β -2 adrenergic receptors, -adrenergic receptors, substance K receptors, rhodopsin receptors, angiotensin receptors, dopamine receptors, nerve growth factor receptors, serotonin receptors, and taste cell receptors.

27. (previously presented) The method of claim 24, wherein the G-protein coupled receptor is rhodopsin.

28. (previously presented) The method of claim 27, wherein the rhodopsin is recombinant.

29. (previously presented) The method of claim 24, wherein the step of detecting comprises a G-protein coupled, receptor phosphorylation assay.

30. (previously presented) The method of claim 24, wherein the step of detecting comprises a G-protein coupled receptor mobility assay.

31. (previously presented) The method of claim 24, wherein the animal is selected from the group consisting of an insect and a mammal.

32. (currently amended) The method of claim 24, further comprising the steps of:

(iv) providing a second animal comprising a cell comprising the G-protein coupled receptor and a mutant Drosophila RDGC phosphatase;

(v) contacting the second animal with the test compound suspected of having the ability to modulate RDGC GPCR phosphatase activity;

(vi) detecting Drosophila RDGC GPCR phosphatase activity in the second animal; and

(vii) comparing the level of Drosophila RDGC GPCR phosphatase activity in the first animal and the second animal.

33. (currently amended) A method of screening *in vivo* for modulators of RDGC GPCR phosphatase activity, the method comprising the steps of:

(i) providing an animal comprising a cell comprising rhodopsin and a Drosophila RDGC phosphatase;

(ii) contacting the animal with a test compound suspected of having the ability to modulate RDGC GPCR phosphatase activity; and

(iii) detecting a change in the level of Drosophila RDGC GPCR phosphatase activity in the animal in comparison to the level in the absence of the test compound thereby detecting Drosophila RDGC GPCR phosphatase activity.

34. (currently amended) The method of claim 33, wherein the Drosophila RDGC phosphatase is recombinant.

35. (previously presented) The method of claim 33, wherein the rhodopsin is recombinant.

36. (currently amended) The method of claim 33, further comprising the steps of:

(iv) providing a second animal comprising a cell comprising the rhodopsin and a mutant Drosophila RDGC phosphatase;

(v) contacting the animal with the test compound suspected of having the ability to modulate RDGC phosphatase activity;

(vi) detecting Drosophila RDGC phosphatase activity in the second animal;
and

(vii) comparing the level of Drosophila RDGC phosphatase activity in the first animal and the second animal.

37. (currently amended) A kit for screening for modulators of RDGC GPCR phosphatase activity, the kit comprising:

(i) a container holding a G-protein coupled receptor and a Drosophila RDGC phosphatase, wherein the Drosophila RDGC phosphatase has GPCR phosphatase activity; and ;

(ii) instructions for assaying for Drosophila RDGC GPCR phosphatase activity.

38. (currently amended) A kit of claim 37, wherein the G-protein coupled receptor and the Drosophila RDGC phosphatase are recombinant.